# **Refine Search**

### Search Results -

| Terms     | Documents |
|-----------|-----------|
| L9 and L8 | 59        |

US Patents Full-Text Database US OCR Full-Text Database EPO Abstracts Database Database: JPO Abstracts Database **Derwent World Patents Index** 

**IBM Technical Disclosure Bulletins** 

US Pre-Grant Publication Full-Text Database

Search:

| L10 |             | <u></u>     | <u> </u> |               |
|-----|-------------|-------------|----------|---------------|
|     |             | <del></del> | -        | Refine Search |
|     |             |             |          |               |
|     | Recall Text | Cloar       |          | Interrupt     |

# Search History

# DATE: Wednesday, July 20, 2005 Printable Copy Create Case

| Set Name side by side | Query                                      | Hit Count | Set Name result set |
|-----------------------|--|-----------|---------------------|
| •                     | B,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=1    | ES; OP=OR | resure see          |
| <u>L10</u>            | L9 and L8                                  | 59        | <u>L10</u>          |
| <u>L9</u>             | ("prediction model" or "predictive model") | 3811      | <u>L9</u>           |
| <u>L8</u>             | L7 and (L6 or L5 or L4 or L3)              | 2806      | <u>L8</u>           |
| <u>L7</u>             | neur\$8                                    | 172047    | <u>L7</u>           |
| <u>L6</u>             | "modular neural network"                   | 138       | <u>L6</u>           |
| <u>L5</u>             | "Associative Neural Network" or ASNN       | 90        | <u>L5</u>           |
| <u>L4</u>             | "committee of machines"                    | 0         | <u>L4</u>           |
| <u>L3</u>             | ensemble                                   | 14537     | <u>L3</u>           |
| <u>L2</u>             | neur\$8 and ensemble                       | 2659      | <u>L2</u>           |
| DB = USP'             | T; PLUR=YES; OP=OR                         |           |                     |
| <u>L1</u>             | 6591254                                    | 1         | <u>L1</u>           |

**END OF SEARCH HISTORY** 

# **Refine Search**

### Search Results -

| Terms      | Documents |
|------------|-----------|
| L12 and L9 | 49        |

US Pre-Grant Publication Full-Text Database
US Patents Full-Text Database
US OCR Full-Text Database
EPO Abstracts Database
JPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Search:

Database:

| L14 |               |       |                   |
|-----|---------------|-------|-------------------|
|     |               |       | <br>Refine Search |
|     |               |       |                   |
|     | Recall Text 👄 | Clear | Interrupt         |

### **Search History**

DATE: Wednesday, July 20, 2005 Printable Copy Create Case

| Set Name side by side | Query                                      | Hit Count  | Set Name result set |
|-----------------------|--|------------|---------------------|
| DB=PGP                | B,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=1    | YES; OP=OR |                     |
| <u>L14</u>            | L12 and L9                                 | 49         | <u>L14</u>          |
| <u>L13</u>            | L12 and L11                                | 710        | <u>L13</u>          |
| <u>L12</u>            | L11 and (L6 or L5 or L4 or L3)             | 710        | <u>L12</u>          |
| <u>L11</u>            | "neural network"                           | 25536      | <u>L11</u>          |
| <u>L10</u>            | L9 and L8                                  | 59         | <u>L10</u>          |
| <u>L9</u>             | ("prediction model" or "predictive model") | 3811       | <u>L9</u>           |
| <u>L8</u>             | L7 and (L6 or L5 or L4 or L3)              | 2806       | <u>L8</u>           |
| <u>L7</u>             | neur\$8                                    | 172047     | <u>L7</u>           |
| <u>L6</u>             | "modular neural network"                   | 138        | <u>L6</u>           |
| <u>L5</u>             | "Associative Neural Network" or ASNN       | 90         | <u>L5</u>           |
| <u>L4</u>             | "committee of machines"                    | 0          | <u>L4</u>           |
| <u>L3</u>             | ensemble                                   | 14537      | <u>L3</u>           |
| <u>L2</u>             | neur\$8 and ensemble                       | 2659       | <u>L2</u>           |
| DB = USP              | T: PLUR = YES: OP = OR                     |            |                     |

<u>L1</u> 6591254

1 <u>L1</u>

END OF SEARCH HISTORY

# **Refine Search**

### Search Results -

| Terms | Documents |
|-------|-----------|
| L17   | 28        |

US Pre-Grant Publication Full-Text Database
US Patents Full-Text Database
US OCR Full-Text Database
US OCR Full-Text Database
EPO Abstracts Database
JPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

L18

Refine Search

Refine Search

## **Search History**

DATE: Wednesday, July 20, 2005 Printable Copy Create Case

| Set Name     | Query  | Hit Count     | Set Name     |
|--------------|--|---------------|--------------|
| side by side |  |               | result set   |
| DB = USP     | T,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OF         | P=OR          |              |
| <u>L18</u>   | L17  | 28            | <u>L18</u>   |
| DB=PGP       | PB, USPT, USOC, EPAB, JPAB, DWPI, TDBD; PLUR = Y | ES; $OP = OR$ |              |
| <u>L17</u>   | ensemble near L11                                | 66            | <u>L17</u>   |
| <u>L16</u>   | ensemble near network                            | 83            | <u>L16</u> . |
| <u>L15</u>   | (L6 or L5 or L4 or L3)                           | 14717         | <u>L15</u>   |
| <u>L14</u>   | L12 and L9                                       | 49            | <u>L14</u>   |
| <u>L13</u>   | L12 and L11                                      | 710           | <u>L13</u>   |
| <u>L12</u>   | L11 and (L6 or L5 or L4 or L3)                   | 710           | <u>L12</u>   |
| <u>L11</u>   | "neural network"                                 | 25536         | <u>L11</u>   |
| <u>L10</u>   | L9 and L8  | 59            | <u>L10</u>   |
| <u>L9</u>    | ("prediction model" or "predictive model")       | 3811          | <u>L9</u>    |
| <u>L8</u>    | L7 and (L6 or L5 or L4 or L3)                    | 2806          | <u>L8</u>    |
| <u>L7</u>    | neur\$8  | 172047        | <u>L7</u>    |
| <u>L6</u>    | "modular neural network"                         | 138           | <u>L6</u>    |
|              |  |               |              |

| <u>L5</u> | "Associative Neural Network" or ASNN | 90    | <u>L5</u> |
|-----------|--------------------------------------|-------|-----------|
| <u>L4</u> | "committee of machines"              | 0     | <u>L4</u> |
| <u>L3</u> | ensemble                             | 14537 | <u>L3</u> |
| <u>L2</u> | neur\$8 and ensemble                 | 2659  | <u>L2</u> |
| DB=US     | SPT; PLUR=YES; OP=OR                 |       |           |
| <u>L1</u> | 6591254                              | 1     | <u>L1</u> |

## END OF SEARCH HISTORY

## **Hit List**

Clear Generate Collection Print Fwd Refs Bkwd Refs
Generate OACS

Search Results - Record(s) 1 through 10 of 28 returned.

1. Document ID: US 6915241 B2

L18: Entry 1 of 28

File: USPT

Jul 5, 2005

US-PAT-NO: 6915241

DOCUMENT-IDENTIFIER: US 6915241 B2

TITLE: Method for segmentation and identification of nonstationary time series

DATE-ISSUED: July 5, 2005

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Kohlmorgen; Jens Berlin DE Lemm; Steven Berlin DE

US-CL-CURRENT:  $\frac{702}{189}$ ;  $\frac{700}{102}$ ,  $\frac{700}{103}$ ,  $\frac{701}{107}$ ,  $\frac{701}{92}$ ,  $\frac{701}{97}$ ,  $\frac{702}{179}$ ,  $\frac{702}{32}$ ,  $\frac{702}{50}$ ,  $\frac{704}{260}$ ,  $\frac{704}{500}$ ,  $\frac{704}{503}$ ,  $\frac{714}{51}$ 

Full Title Citation Front Review Classification Date Reference **多数性性多数 2000 空根** Claims KWIC Draw. De

2. Document ID: US 6915212 B2

L18: Entry 2 of 28

File: USPT

Jul 5, 2005

US-PAT-NO: 6915212

DOCUMENT-IDENTIFIER: US 6915212 B2

TITLE: Systems and methods for processing complex data sets

DATE-ISSUED: July 5, 2005

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Kamps; Bill Houston TX

US-CL-CURRENT: 702/14

Record List Display Page 2 of 5

☐ 3. Document ID: US 6885968 B2

L18: Entry 3 of 28 File: USPT Apr 26, 2005

US-PAT-NO: 6885968

DOCUMENT-IDENTIFIER: US 6885968 B2

TITLE: Vehicular exterior identification and monitoring system-agricultural product

distribution

DATE-ISSUED: April 26, 2005

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Breed; David S. Boonton Township, Morris County NJ
DuVall; Wilbur E. Kimberling City MO
Johnson; Wendell C. Signal Hill CA

US-CL-CURRENT: 702/143; 702/142, 702/149, 702/159

Full Title Citation Front Review Classification Date Reference Sequences Citation Claims KWIC Draw De

4. Document ID: US 6850824 B2

L18: Entry 4 of 28 File: USPT Feb 1, 2005

US-PAT-NO: 6850824

DOCUMENT-IDENTIFIER: US 6850824 B2

TITLE: Method and apparatus for controlling a vehicular component

DATE-ISSUED: February 1, 2005

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Breed; David S. Boonton Township, Morris County NJ

US-CL-CURRENT: 701/36; 701/29, 701/34

Full Title Citation Front Review Classification Date Reference Sequences Attachments Claims KMC Draw. De

5. Document ID: US 6784379 B2

L18: Entry 5 of 28 File: USPT Aug 31, 2004

US-PAT-NO: 6784379

DOCUMENT-IDENTIFIER: US 6784379 B2

TITLE: Arrangement for obtaining information about an occupying item of a seat

DATE-ISSUED: August 31, 2004

Record List Display Page 3 of 5

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Breed; David S. Boonton Township, Morris County NJ
DuVall; Wilbur E. Kimberling City MO
Johnson; Wendell C. Signal Hill CA

US-CL-CURRENT: 177/144; 180/273, 280/735, 701/45, 701/49

Full Title Citation Front Review Classification Date Reference Sequences Attachments Claims KMC Draw. De

☐ 6. Document ID: US 6782316 B2

L18: Entry 6 of 28 File: USPT Aug 24, 2004

US-PAT-NO: 6782316

DOCUMENT-IDENTIFIER: US 6782316 B2

TITLE: Apparatus and method for adjusting a steering wheel

DATE-ISSUED: August 24, 2004

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Breed; David S. Boonton Township, Morris County NJ
DuVall; Wilbur E. Kimberling City MO
Johnson; Wendell C. Signal Hill CA

US-CL-CURRENT: 701/49; 180/273, 318/467, 701/45

Full Title Citation Front Review Classification Date Reference Countries Claims KWIC Draw. De

7. Document ID: US 6757602 B2

L18: Entry 7 of 28 File: USPT Jun 29, 2004

US-PAT-NO: 6757602

DOCUMENT-IDENTIFIER: US 6757602 B2

TITLE: System for determining the occupancy state of a seat in a vehicle and

controlling a component based thereon

DATE-ISSUED: June 29, 2004

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Breed; David S. Boonton Township, Morris County NJ
DuVall; Wilbur E. Kimberling City MO
Johnson; Wendell C. Signal Hill CA
Morin; Jeffrey L. Lincoln Park MI

Xu; Kunhong

Rochester Hills

ΜI

Kussul; Michael E. Kyiv

Chen: Tie-Oi

Windsor

UA CA

US-CL-CURRENT: 701/45; 180/268, 180/271, 280/735

Full Title Citation Front Review Classification Date Reference Caracter Claims KWC Draw. De

8. Document ID: US 6738697 B2

L18: Entry 8 of 28

File: USPT

May 18, 2004

US-PAT-NO: 6738697

DOCUMENT-IDENTIFIER: US 6738697 B2

TITLE: Telematics system for vehicle diagnostics

DATE-ISSUED: May 18, 2004

INVENTOR-INFORMATION:

NAME

CITY

STATE ZIP CODE COUNTRY

Breed; David S. Boonton Township, Morris County

NJ

US-CL-CURRENT: 701/29; 701/34

Full Title Citation Front Review Classification Date Reference

9. Document ID: US 6735506 B2

L18: Entry 9 of 28

File: USPT

May 11, 2004

US-PAT-NO: 6735506

DOCUMENT-IDENTIFIER: US 6735506 B2

TITLE: Telematics system

DATE-ISSUED: May 11, 2004

INVENTOR-INFORMATION:

NAME

CITY

STATE ZIP CODE

COUNTRY

Breed; David S.

Morris County

ŊJ

DuVall; Wilbur E.

Kimberling City

MO

Johnson; Wendell C.

Signal Hill

CA

US-CL-CURRENT: 701/36

Full Title Citation Front Review Classification Date Reference

☐ 10. Document ID: US 6697457 B2

L18: Entry 10 of 28

File: USPT

Feb 24, 2004

US-PAT-NO: 6697457

DOCUMENT-IDENTIFIER: US 6697457 B2

TITLE: Voice messaging system that organizes voice messages based on detected

emotion

DATE-ISSUED: February 24, 2004

INVENTOR-INFORMATION:

NAME

CITY

STATE

ZIP CODE

COUNTRY

Petrushin; Valery A.

Buffalo Grove

IL

US-CL-CURRENT: 379/88.08; 704/205, 704/209, 704/270

| Full  | Title | Citation | Front  | Review   | Classification | Date  | Reference | (\$0x herica) | 的批析解於 | Claims | KWIC   | Draw, De |
|-------|-------|----------|--------|----------|----------------|-------|-----------|---------------|-------|--------|--------|----------|
| Clear |       | Gener    | ate Co | llection | Print          | F     | wd Refs   | Bkwd          | Refs  | Genera | ate OA | cs       |
|       | Ter   | ms       |        |          | Docu           | ments | 3         |               |       |        |        |          |
|       | L1    | 7        |        |          |                | ··    |           |               |       |        | 28     |          |

**Change Format** Display Format:

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## **Hit List**

Clear **Generate Collection Print** Fwd Refs **Bkwd Refs** Generate OACS

Search Results - Record(s) 11 through 20 of 28 returned.

☐ 11. Document ID: US 6671391 B1

L18: Entry 11 of 28

File: USPT

Dec 30, 2003

US-PAT-NO: 6671391

DOCUMENT-IDENTIFIER: US 6671391 B1

TITLE: Pose-adaptive face detection system and process

DATE-ISSUED: December 30, 2003

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Zhang; Hong-Jiang Beijing CN Yong; Ma Beijing CN

US-CL-CURRENT: 382/118; 382/159



12. Document ID: US 6526168 B1

L18: Entry 12 of 28 File: USPT Feb 25, 2003

US-PAT-NO: 6526168

DOCUMENT-IDENTIFIER: US 6526168 B1

TITLE: Visual neural classifier

DATE-ISSUED: February 25, 2003

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Ornes; Chester Garden Grove CA

Sklansky; Jack Corona Del Mar CA

US-CL-CURRENT: 382/158; 706/20, 706/31



☐ 13. Document ID: US 6484080 B2

L18: Entry 13 of 28

File: USPT

Nov 19, 2002

US-PAT-NO: 6484080

DOCUMENT-IDENTIFIER: US 6484080 B2

TITLE: Method and apparatus for controlling a vehicular component

DATE-ISSUED: November 19, 2002

INVENTOR - INFORMATION:

NAME CITY

STATE ZIP CODE COUNTRY

Breed; David S. Boonton Township, Morris County NJ

US-CL-CURRENT: 701/36; 701/29, 701/34.

Full Title Citation Front Review Classification Date Reference

14. Document ID: US 6480826 B2

L18: Entry 14 of 28

File: USPT

Nov 12, 2002

US-PAT-NO: 6480826

DOCUMENT-IDENTIFIER: US 6480826 B2

\*\* See image for Certificate of Correction \*\*

TITLE: System and method for a telephonic emotion detection that provides operator feedback

DATE-ISSUED: November 12, 2002

INVENTOR-INFORMATION:

NAME

CITY

STATE ZIP CODE

COUNTRY

Pertrushin; Valery A.

Arlington Heights

IL

US-CL-CURRENT: <u>704/270</u>; <u>704/273</u>, <u>704/274</u>, <u>704/275</u>

Full Title Citation Front Review Classification Date Reference <u>Computation 9,000年代</u> Claims KMC Draw, De

15. Document ID: US 6463415 B2

L18: Entry 15 of 28

File: USPT

Oct 8, 2002

US-PAT-NO: 6463415

DOCUMENT-IDENTIFIER: US 6463415 B2

\*\* See image for Certificate of Correction \*\*

TITLE: 69voice authentication system and method for regulating border crossing

DATE-ISSUED: October 8, 2002

INVENTOR-INFORMATION:

NAME

CITY

STATE ZIP CODE

COUNTRY

St. John; Vicki

Boulder Creek

CA

US-CL-CURRENT:  $\frac{704}{273}$ ;  $\frac{600}{300}$ ,  $\frac{600}{407}$ ,  $\frac{704}{231}$ ,  $\frac{704}{270}$ ,  $\frac{704}{272}$ ,  $\frac{704}{275}$ 

Full Title Citation Front Review Classification Date Reference

16. Document ID: US 6456991 B1

L18: Entry 16 of 28

File: USPT

Sep 24, 2002

US-PAT-NO: 6456991

DOCUMENT-IDENTIFIER: US 6456991 B1

TITLE: Classification method and apparatus based on boosting and pruning of

multiple classifiers

DATE-ISSUED: September 24, 2002

INVENTOR-INFORMATION:

NAME

CITY

STATE

ZIP CODE

COUNTRY

Srinivasa; Narayan

Thousand Oaks

CA

Owechko; Yuri

Newbury Park

CA

US-CL-CURRENT:  $\underline{706/20}$ ;  $\underline{704/9}$ ,  $\underline{706/16}$ ,  $\underline{706/25}$ 

Full | Title | Citation | Front | Review | Classification | Date | Reference | Classification | Classification | Date | Date

17. Document ID: US 6445988 B1

L18: Entry 17 of 28

File: USPT

Sep 3, 2002

US-PAT-NO: 6445988

DOCUMENT-IDENTIFIER: US 6445988 B1

TITLE: System for determining the occupancy state of a seat in a vehicle and

controlling a component based thereon

DATE-ISSUED: September 3, 2002

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Breed; David S. Boonton Township, Morris County NJ
DuVall; Wilbur E. Kimberling City MO
Johnson; Wendell C. Signal Hill CA
Morin; Jeffrey L. Lincoln Park MI

Xu; Kunhong Rochester Hills

MI

Kussul; Michael E. Kyiv

UA

Record List Display Page 4 of 5

US-CL-CURRENT: 701/45; 180/268, 180/271, 280/735

Full Title Citation Front Review Classification Date Reference

18. Document ID: US 6427137 B2

L18: Entry 18 of 28

File: USPT

Jul 30, 2002

US-PAT-NO: 6427137

DOCUMENT-IDENTIFIER: US 6427137 B2

\*\* See image for Certificate of Correction \*\*

TITLE: System, method and article of manufacture for a voice analysis system that detects nervousness for preventing fraud

DATE-ISSUED: July 30, 2002

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Petrushin; Valery A.

Arlington Heights

US-CL-CURRENT: 704/273; 704/209, 704/270, 704/272, 704/275

Full Title Citation Front Review Classification Date Reference (1996) 1995 (1996) Claims KMC Draw De

☐ 19. Document ID: US 6353810 B1

L18: Entry 19 of 28

File: USPT

Mar 5, 2002

US-PAT-NO: 6353810

DOCUMENT-IDENTIFIER: US 6353810 B1

\*\* See image for Certificate of Correction \*\*

TITLE: System, method and article of manufacture for an emotion detection system improving emotion recognition

DATE-ISSUED: March 5, 2002

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Petrushin; Valery A. Arlington Heights

US-CL-CURRENT: <u>704/236</u>; <u>704/246</u>, <u>704/270</u>

Full Title Citation Front Review Classification Date Reference

20. Document ID: US 6275806 B1

L18: Entry 20 of 28

File: USPT

Aug 14, 2001

US-PAT-NO: 6275806

DOCUMENT-IDENTIFIER: US 6275806 B1

TITLE: System method and article of manufacture for detecting emotion in voice

signals by utilizing statistics for voice signal parameters

DATE-ISSUED: August 14, 2001

INVENTOR-INFORMATION:

NAME

CITY

STATE ZIP CODE

COUNTRY

Pertrushin; Valery A.

Arlington Heights

 $_{
m IL}$ 

US-CL-CURRENT: <u>704/272</u>; <u>704/270</u>

| Full  | Title | Citation | Front  | Review   | Classification | Date  | Reference | isotralité. | "如此"、"如果"。 | Claims | KWIC   | Drawi I |
|-------|-------|----------|--------|----------|----------------|-------|-----------|-------------|------------|--------|--------|---------|
| Clear |       | Gener    | ate Co | llection | Print          | ] [_F | wd Refs   | Bkwd        | Refs       | Genera | ate OA | cs      |
|       | Ter   | ms       |        |          | Docu           | ments | S         |             |            |        |        |         |
|       | L17   | 7        |        |          |                |       | •         |             |            |        | 28     |         |

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## **Hit List**

Clear Generate Collection Print Fwd Refs Bkwd Refs
Generate OACS

Search Results - Record(s) 21 through 28 of 28 returned.

☐ 21. Document ID: US 6151571 A

L18: Entry 21 of 28

File: USPT

Nov 21, 2000

US-PAT-NO: 6151571

DOCUMENT-IDENTIFIER: US 6151571 A

TITLE: System, method and article of manufacture for detecting emotion in voice

signals through analysis of a plurality of voice signal parameters

DATE-ISSUED: November 21, 2000

INVENTOR-INFORMATION:

NAME

CITY

STATE ZIP CODE

COUNTRY

Pertrushin; Valery A.

Arlington Heights

IL

US-CL-CURRENT: <u>704/209</u>; <u>704/207</u>, <u>704/270</u>

| Full Title | Citation | Front | Review | Classification | Date | Reference | Espiration. | "At all to confe?"                    | Claims | KWC | Draw, De |
|------------|----------|-------|--------|----------------|------|-----------|-------------|---------------------------------------|--------|-----|----------|
|            |          |       |        | -              |      | ~ "       | <u> </u>    | · · · · · · · · · · · · · · · · · · · |        |     |          |

☐ 22. Document ID: US 6135965 A

L18: Entry 22 of 28

File: USPT

Oct 24, 2000

US-PAT-NO: 6135965

DOCUMENT-IDENTIFIER: US 6135965 A

TITLE: Spectroscopic detection of cervical pre-cancer using radial basis function

networks

DATE-ISSUED: October 24, 2000

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Tumer; Kagan Sunnyvale CA
Ramanujam; Nirmala Philadelphia PA
Richards-Kortum; Rebecca Austin TX
Ghosh; Joydeep Austin TX

US-CL-CURRENT: 600/476; 128/925, 600/408



☐ 23. Document ID: US 6009199 A

L18: Entry 23 of 28

File: USPT

Dec 28, 1999

US-PAT-NO: 6009199

DOCUMENT-IDENTIFIER: US 6009199 A

TITLE: Classification technique using random decision forests

DATE-ISSUED: December 28, 1999

INVENTOR-INFORMATION:

NAME

CITY

STATE

ZIP CODE COUNTRY

Ho; Tin Kam

Cedar Grove

ŊJ

US-CL-CURRENT: 382/224; 382/226, 382/227

| Full | Title | Citation | Front | Review | Classification | Date | Reference | 是他们的 关 | 美術的一种的一种 Clair | ns KWMC | Draw, De |
|------|-------|----------|-------|--------|----------------|------|-----------|--------|----------------|---------|----------|
| _    |       |          |       |        |                |      |           |        | · <del></del>  |         |          |

☐ 24. Document ID: US 5930392 A

L18: Entry 24 of 28

File: USPT

Jul 27, 1999

US-PAT-NO: 5930392

DOCUMENT-IDENTIFIER: US 5930392 A

TITLE: Classification technique using random decision forests

DATE-ISSUED: July 27, 1999

INVENTOR-INFORMATION:

NAME

CITY

STATE

ZIP CODE COUNTRY

Ho; Tin Kam

Cedar Grove

ŊJ

US-CL-CURRENT: 382/224; 382/226, 382/227

Full Title Citation Front Review Classification Date Reference

☐ 25. Document ID: US 5776063 A

L18: Entry 25 of 28

File: USPT

Jul 7, 1998

US-PAT-NO: 5776063

DOCUMENT-IDENTIFIER: US 5776063 A

TITLE: Analysis of ultrasound images in the presence of contrast agent

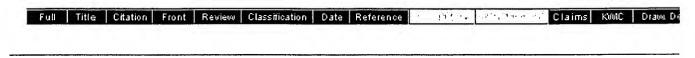
DATE-ISSUED: July 7, 1998

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Dittrich; Howard San Diego CA Levene; Harold San Diego CA Mjolsness; Eric Encinitas CA

US-CL-CURRENT: 600/408; 600/458



☐ 26. Document ID: US 5502688 A

L18: Entry 26 of 28 . File: USPT Mar 26, 1996

US-PAT-NO: 5502688

DOCUMENT-IDENTIFIER: US 5502688 A

TITLE: Feedforward neural network system for the detection and characterization of

sonar signals with characteristic spectrogram textures

DATE-ISSUED: March 26, 1996

INVENTOR-INFORMATION:

NAME CITY STATE ZIP CODE COUNTRY

Recchione; Michael C. Nutley NJ Russo; Anthony P. Bloomfield NJ

US-CL-CURRENT: 367/131; 367/135, 367/901



☐ 27. Document ID: EP 1378855 A2

L18: Entry 27 of 28 File: EPAB Jan 7, 2004

PUB-NO: EP001378855A2

DOCUMENT-IDENTIFIER: EP 1378855 A2

TITLE: Exploiting ensemble diversity for automatic feature extraction

PUBN-DATE: January 7, 2004

INVENTOR-INFORMATION:

NAME COUNTRY
YAO, XIN PROF DR GB
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INT-CL (IPC):  $\underline{G06} \times \underline{9/62}$ 

EUR-CL (EPC): G06K009/62; G06K009/66



28. Document ID: IE 83594 B, WO 200261679 A2, IE 82434 B3, AU 2002230051 A1, EP 1417643 A2, US 20040093315 A1

L18: Entry 28 of 28

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Sep 22, 2004

DERWENT-ACC-NO: 2002-548570

DERWENT-WEEK: 200462

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TITLE: Prediction model generation for neural network training, trains an <u>ensemble of neural networks</u>, estimates a performance error value and uses it to train a subsequent ensemble of neural networks in an iterative process

INVENTOR: CARNEY, J

PRIORITY-DATA: 2001IE-0000075 (January 31, 2001)

#### PATENT-FAMILY:

| PUB-NO            | PUB-DATE           | LANGUAGE | PAGES | MAIN-IPC   |
|-------------------|--------------------|----------|-------|------------|
| IE 83594 B        | September 22, 2004 |          | 000   | G06N003/04 |
| WO 200261679 A2   | August 8, 2002     | E        | 030   | G06N003/08 |
| IE 82434 B3       | August 21, 2002    |          | 000   | G06F015/18 |
| AU 2002230051 A1  | August 12, 2002    |          | 000   | G06N003/08 |
| EP 1417643 A2     | May 12, 2004       | E        | 000   | G06N003/04 |
| US 20040093315 A1 | May 13, 2004       |          | 000   | G06G007/62 |

INT-CL (IPC):  $\underline{G06} \ \underline{F} \ \underline{15/18}$ ;  $\underline{G06} \ \underline{G} \ \underline{7/62}$ ;  $\underline{G06} \ \underline{K} \ \underline{9/66}$ ;  $\underline{G06} \ \underline{N} \ \underline{3/04}$ ;  $\underline{G06} \ \underline{N} \ \underline{3/08}$ 

| Full      | Title | Citation | Front               | Review   | Classification | Date       | Reference | 學的學術 | ्यानेहार्यः स्टब्स्टर | Claims | KMC    | Draw, De |
|-----------|-------|----------|---------------------|----------|----------------|------------|-----------|------|-----------------------|--------|--------|----------|
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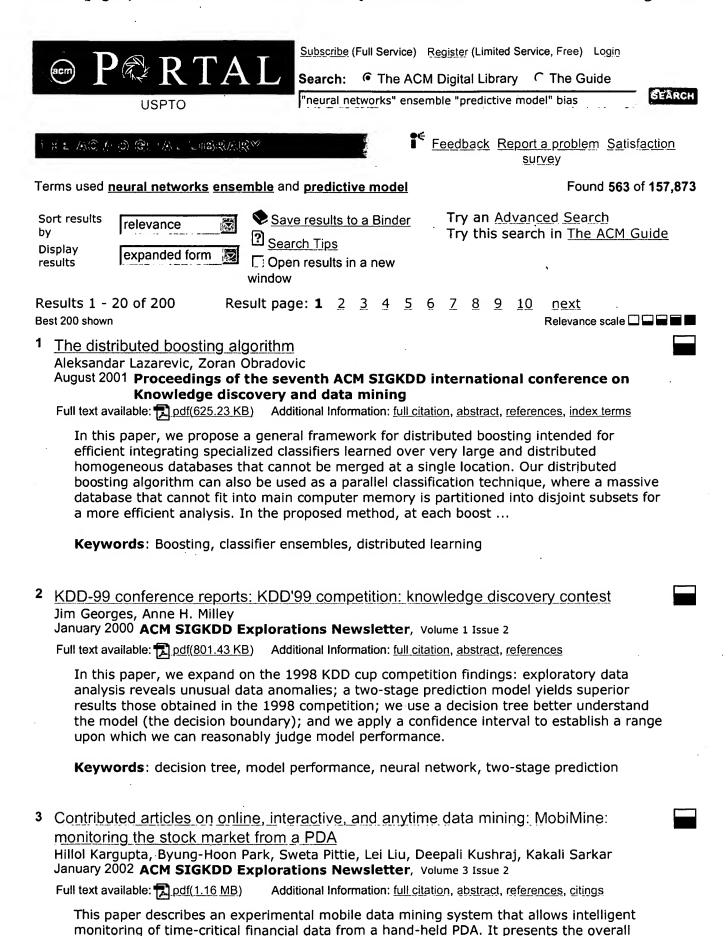
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system architecture and the philosophy behind the design. It explores one particular aspect of the system---automated construction of personalized focus area that calls for user's attention. This module works using data mining techniques. The paper describes the data mining component of the system that employs a novel Four ...

4 Reports: Protein matching with custom neural network objective functions David S. Vogel, Eric Gottschalk, Morgan C. Wang December 2004 ACM SIGKDD Explorations Newsletter, Volume 6 Issue 2



Full text available: pdf(155.45 KB) Additional Information: full citation, abstract, references

This 2004 KDD Cup presents a perfect case where the usual neural network objective functions do not apply. While the contest problem consisted of 4 different entries with 4 different objective functions, this paper will focus on the solution optimizing GRMSE (Grouped Root Mean Squared Error). It will be shown that the more typical objective functions (including RMSE) cannot be as effective at meeting this criteria. While this objective function may be specific to this problem, and the reader may ...

Keywords: KDD, KDD Cup, MITCH, classification, homology, machine learning, neural networks, objective functions, protein

5 Special issue on learning from imbalanced datasets: Minority report in fraud detection: classification of skewed data



Clifton Phua, Damminda Alahakoon, Vincent Lee

June 2004 ACM SIGKDD Explorations Newsletter, Volume 6 Issue 1

Full text available: Topdf(262.38 KB) Additional Information: full citation, abstract, references, citings

This paper proposes an innovative fraud detection method, built upon existing fraud detection research and Minority Report, to deal with the data mining problem of skewed data distributions. This method uses backpropagation (BP), together with naive Bayesian (NB) and C4.5 algorithms, on data partitions derived from minority oversampling with replacement. Its originality lies in the use of a single meta-classifier (stacking) to choose the best base classifiers, and then combine these base ...

**Keywords**: fraud detection, meta-learning, multiple classifier systems

6 Papyrus: a system for data mining over local and wide area clusters and super-clusters S. Bailey, R. Grossman, H. Sivakumar, A. Turinsky



January 1999 Proceedings of the 1999 ACM/IEEE conference on Supercomputing (CDROM)

Full text available: 📆 pdf(538.23 KB) Additional Information: full citation, references, citings, index terms

<sup>7</sup> Statistical methods I: MARK: a boosting algorithm for heterogeneous kernel models Kristin P. Bennett, Michinari Momma, Mark J. Embrechts



July 2002 Proceedings of the eighth ACM SIGKDD international conference on Knowledge discovery and data mining

Full text available: pdf(774.00 KB)

Additional Information: full citation, abstract, references, citings, index

Support Vector Machines and other kernel methods have proven to be very effective for nonlinear inference. Practical issues are how to select the type of kernel including any parameters and how to deal with the computational issues caused by the fact that the kernel matrix grows quadratically with the data. Inspired by ensemble and boosting

methods like MART, we propose the Multiple Additive Regression Kernels (MARK) algorithm to address these issues. MARK considers a large (potentially infinite ...

8 Genetic algorithms: Evolving neural network ensembles for control problems David Pardoe, Michael Ryoo, Risto Miikkulainen June 2005 Proceedings of the 2005 conference on Genetic and evolutionary computation GECCO '05



Full text available: 🔁 pdf(121.49 KB) Additional Information: full citation, abstract, references, index terms

In neuroevolution, a genetic algorithm is used to evolve a neural network to perform a particular task. The standard approach is to evolve a population over a number of generations, and then select the final generation's champion as the end result. However, it is possible that there is valuable information present in the population that is not captured by the champion. The standard approach ignores all such information. One possible solution to this problem is to combine multiple individuals fro ...

Keywords: ensembles, genetic algorithms, neural networks, reinforcement learning

9 Reports from KDD-2001: KDD Cup 2001 report Jie Cheng, Christos Hatzis, Hisashi Hayashi, Mark-A. Krogel, Shinichi Morishita, David Page, Jun Sese

January 2002 ACM SIGKDD Explorations Newsletter, Volume 3 Issue 2

Full text available: pdf(1.96 MB) Additional Information: full citation, abstract, references, citings

This paper presents results and lessons from KDD Cup 2001. KDD Cup 2001 focused on mining biological databases. It involved three cutting-edge tasks related to drug design and genomics.

Keywords: Competition, biology, drug design, genomics

10 KDD-99 conference reports: KDD-cup 99: knowledge discovery in a charitable organization's donor database

Saharon Rosset, Aron Inger

January 2000 ACM SIGKDD Explorations Newsletter, Volume 1 Issue 2

Full text available: pdf(557.52 KB) Additional Information: full citation, citings

11 Data filtering for automatic classification of rocks from reflectance spectra Jonathan Moody, Ricardo Silva, Joseph Vanderwaart

August 2001 Proceedings of the seventh ACM SIGKDD international conference on Knowledge discovery and data mining

Full text available: Topdf(597.99 KB) Additional Information: full citation, abstract, references, index terms

The ability to identify the mineral composition of rocks and soils is an important tool for the exploration of geological sites. For instance, NASA intends to design robots that are sufficiently autonomous to perform this task on planetary missions. Spectrometer readings provide one important source of data for identifying sites with minerals of interest. Reflectance spectrometers measure intensities of light reflected from surfaces over a range of wavelengths. Spectral intensity patterns may in ...

12 Incorporating contextual information in recommender systems using a multidimensional approach

Gediminas Adomavicius, Ramesh Sankaranarayanan, Shahana Sen, Alexander Tuzhilin

| January 2005 ACM Transactions of | on Information Systems | (TOIS), | Volume 23 Issue 1 |
|----------------------------------|------------------------|---------|-------------------|
|----------------------------------|------------------------|---------|-------------------|

Full text available: pdf(423.91 KB) Additional Information: full citation, abstract, references, index terms

The article presents a multidimensional (MD) approach to recommender systems that can provide recommendations based on additional contextual information besides the typical information on users and items used in most of the current recommender systems. This approach supports multiple dimensions, profiling information, and hierarchical aggregation of recommendations. The article also presents a multidimensional rating estimation method capable of selecting two-dimensional segments of ratings pert ...

**Keywords**: Recommender systems, collaborative filtering, context-aware recommender systems, multidimensional data models, multidimensional recommender systems, personalization, rating estimation

13 Contribued articles: A critical review of multi-objective optimization in data mining: a position paper

Alex A. Freitas

December 2004 ACM SIGKDD Explorations Newsletter, Volume 6 Issue 2

Full text available: The pdf(211.81 KB) Additional Information: full citation, abstract, references

This paper addresses the problem of how to evaluate the quality of a model built from the data in a multi-objective optimization scenario, where two or more quality criteria must be simultaneously optimized. A typical example is a scenario where one wants to maximize both the accuracy and the simplicity of a classification model or a candidate attribute subset in attribute selection. One reviews three very different approaches to cope with this problem, namely: (a) transforming the original mult ...

Keywords: classification, lexicographic approach, multi-objective optimization, pareto dominance

14 KDD-99 conference reports: Knowledge discovery in databases: 10 years after Gregory Piatetsky-Shapiro

January 2000 ACM SIGKDD Explorations Newsletter, Volume 1 Issue 2

Full text available: R pdf(264.76 KB) Additional Information: full citation, abstract, references

In this paper, we describe the past IO years of KDD and outline predictions for the next 10 years.

Keywords: KDD, data mining, history, knowledge discovery in databases

15 Intrusion and privacy: Exploiting unlabeled data in ensemble methods

Kristin P. Bennett, Ayhan Demiriz, Richard Maclin

July 2002 Proceedings of the eighth ACM SIGKDD international conference on Knowledge discovery and data mining

Full text available: 📆 pdf(719.46 KB) Additional Information: full citation, abstract, references, index terms

An adaptive semi-supervised ensemble method, ASSEMBLE, is proposed that constructs classification ensembles based on both labeled and unlabeled data. ASSEMBLE alternates between assigning "pseudo-classes" to the unlabeled data using the existing ensemble and constructing the next base classifier using both the labeled and pseudolabeled data. Mathematically, this intuitive algorithm corresponds to maximizing the classification margin in hypothesis space as measured on both the labeled and unlabel ...

**Keywords**: boosting, classification, ensemble learning, semi-supervised learning

| 16 Learning Ensembles from Bites: A Scalable and Accurate Approach Nitesh V. Chawla, Lawrence O. Hall, Kevin W. Bowyer, W. Philip Kegelmeyer December 2004 The Journal of Machine Learning Research, Volume 5  |  |
|--|--|
| Full text available: pdf(3.34 MB) Additional Information: full citation, abstract, index terms   |  |
| Bagging and boosting are two popular ensemble methods that typically achieve better accuracy than a single classifier. These techniques have limitations on massive data sets, because the size of the data set can be a bottleneck. Voting many classifiers built on small subsets of data ("pasting small votes") is a promising approach for learning from massive data sets, one that can utilize the power of boosting and bagging. We propose a framework for building hundreds or thousands of such classifie |  |
| 17 The principled design of large-scale recursive neural network architecturesdag-rnns and the protein structure prediction problem Pierre Baldi, Gianluca Pollastri December 2003 The Journal of Machine Learning Research, Volume 4  |  |
| Full text available: pdf(231.40 KB) Additional Information: full citation, abstract, references, index terms   |  |
| We describe a general methodology for the design of large-scale recursive neural network architectures (DAG-RNNs) which comprises three fundamental steps: (1) representation of a given domain using suitable directed acyclic graphs (DAGs) to connect visible and hidden node variables; (2) parameterization of the relationship between each variable and its parent variables by feedforward neural networks; and (3) application of weight-sharing within appropriate subsets of DAG connections to capture s |  |
| 18 Cluster ensembles a knowledge reuse framework for combining multiple partitions Alexander Strehl, Joydeep Ghosh March 2003 The Journal of Machine Learning Research, Volume 3   |  |
| Full text available: pdf(842.50 KB)  Additional Information: full citation, abstract, references, citings, index terms   |  |
| This paper introduces the problem of combining multiple partitionings of a set of objects into a single consolidated clustering without accessing the features or algorithms that determined these partitionings. We first identify several application scenarios for the resultant 'knowledge reuse' framework that we call cluster ensembles. The cluster ensemble problem is then formalized as a combinatorial optimization problem in terms of shared mutual information. In addition to a direct               |  |
| <b>Keywords</b> : cluster analysis, clustering, consensus functions, ensemble, knowledge reuse, multi-learner systems, mutual information, partitioning, unsupervised learning   |  |
| 19 Generalized additive neural networks William J. E. Potts August 1999 Proceedings of the fifth ACM SIGKDD international conference on Knowledge discovery and data mining Full text available: pdf(628.73 KB) Additional Information: full citation, references, index terms   |  |
| Keywords: additive models, partial residuals, predictive modeling  |  |

<sup>20</sup> Information access and retrieval (IAR): Text classification based on data partitioning

and parameter varying ensembles

Yan-Shi Dong, Ke-Song Han

March 2005 Proceedings of the 2005 ACM symposium on Applied computing

Full text available: pdf(231.21 KB) Additional Information: full citation, abstract, references, index terms

Support vector machines (SVM) are among the best text classifiers so far. Meantimes, ensembles of classifiers are proven to be effective on many domains. It is expected that ensembles of SVM classifiers could achieve better performance. In this paper two types of ensembles on SVM classifiers, the data partitioning ensembles and heterogeneous ensembles, have been proposed and experimentally evaluated on three well-accepted collections. Major conclusions are that disjunct partitioning ensembles wi ...

Keywords: ensemble, support vector machines, text classification

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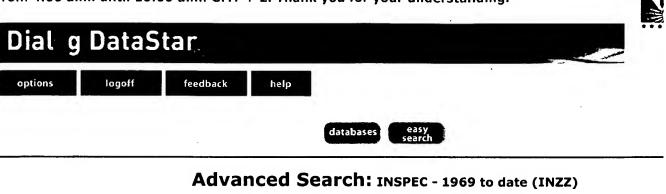
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### Generalization error of ensemble estimators.

### Accession number & update

5391314, C9611-1230D-113; 961009.

#### Author(s)

Ueda-N; Nakano-R.

### Author affiliation

NTT Commun Sci Labs, Kyoto, Japan.

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CPP Conference Paper.

#### Treatment codes

T Theoretical or Mathematical.

#### Abstract

It has been empirically shown that a better estimate with less generalization error can be obtained by averaging outputs of multiple estimators. This paper presents an analytical result for the generalization error of *ensemble* estimators. First, we derive a general expression of the *ensemble* generalization error by using factors of interest (*bias, variance*, covariance, and noise *variance*) and show how the generalization error is affected by each of them. Some special cases are then investigated. The result of a simulation is shown to verify our analytical result. A practically important problem of the *ensemble* approach, *ensemble* dilemma, is also discussed. (7 refs).

#### Descriptors

error—analysis; *feedforward—neural—nets*; generalisation—artificial—intelligence; learning—artificial—intelligence; learning—systems; parameter—estimation.

#### Keywords

ensemble estimators; generalization error; bias; feedforward neural networks; covariance; noise variance; learning systems; parameter estimation.

### Classification codes

```
C1230D (Neural nets).
C1240 (Adaptive system theory).
C4110 (Error analysis in numerical methods).
C1220 (Simulation, modelling and identification).
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